

COVID-19 vaccination in children aged 5–11: a systematic review of parental barriers and facilitators in Western countries

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Abstract

Background: Parental decision-making regarding vaccination, particularly for coronavirus-19 (COVID-19) where significant debate surrounds children aged 5–11, is influenced by various factors. Understanding the motivations behind parents' vaccination choices for their children is crucial for maintaining vaccine uptake, in line with the National Health Service United Kingdom vaccination strategy.

Objectives: The present systematic review aims to identify the barriers and facilitators affecting parents' decisions to vaccinate children aged 5–11 against COVID-19 in Western countries.

Data sources and methods: The first search was conducted using PsychINFO, MEDLINE and Google Scholar in June 2023 with an additional follow-up search a year later in June 2024 for full-text papers focusing on COVID-19 vaccine decision-making among parents or caregivers of children aged 5–11. The language of the included studies was set as English and originating from Western countries specifically examining barriers and facilitators to COVID-19 vaccination, excluding children with chronic conditions. The risk of bias was independently assessed by both authors using the JBI Checklist for Prevalence Studies, with disagreements resolved through discussion.

Results: A total of four cross-sectional questionnaire studies involving a total of 5,812 participants from Western countries (the United States and Europe) were included in the present review. Only 46.35% of parents intended to vaccinate their children aged 5–11 against COVID-19. The primary barriers identified were concerns about side effects and distrust in institutions. Key facilitators included recommendations from healthcare professionals and parents' own COVID-19 vaccination status. Demographic factors including ethnicity and gender showed mixed influence.

Conclusion: Persistent concerns about side effects and institutional distrust have reduced parental intention to vaccinate their children. However, healthcare professionals play an important role in increasing vaccine uptake through recommendations to their patients. Future interventions should focus on equipping healthcare professionals with the necessary tools to effectively promote vaccination and address parental concerns about side effects.

Keywords: COVID-19 vaccination, paediatric vaccination, parental decision-making, vaccination barriers, vaccine hesitancy

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Introduction

Vaccines are among the most effective public health interventions for reducing the morbidity and mortality associated with vaccine-preventable

diseases.¹ The promotion and communication of vaccine safety and efficacy are essential for ensuring high vaccination rates, particularly during emergencies such as the coronavirus-19

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(COVID-19) pandemic.² The rapid development and deployment of COVID-19 vaccines, including those for children,^{3–5} have reinforced the importance of effective health promotion strategies. In the United Kingdom, the National Health Service (NHS)⁶ has emphasised the need to learn from the COVID-19 vaccination rollout to address barriers and sustain high uptake levels.

Children aged 5–11 generally experience milder COVID-19 outcomes compared with older children and adults, which led to careful deliberations by the Joint Committee on Vaccination and Immunisation (JCVI)⁷ regarding vaccination recommendations for this age group, especially considering waning immunity. Despite evidence that severe complications such as multisystem inflammatory syndrome and long COVID are rare in this cohort,⁸ the JCVI recommended vaccination to mitigate future uncertainties regarding COVID-19 severity. This recommendation stresses the need for parents to adhere to vaccination guidelines.

However, the increasing trend of vaccine hesitancy among parents, characterised by delaying or refusing vaccines despite their availability, poses a significant challenge. This hesitancy has contributed to the resurgence of diseases like measles⁹ and increased public health risks.^{10–12} Previous systematic reviews have examined COVID-19 vaccine hesitancy and uptake in children^{13–15}; however, parents may vary in attitudes depending on the age of their child. For example, more parents were willing to vaccinate older children when asked about a hypothetical COVID-19 vaccination.¹⁶ Thus, a clear knowledge gap remains regarding the specific factors influencing parental decisions to vaccinate children aged 5–11 against COVID-19.

Western countries have encountered distinct challenges and contexts concerning COVID-19 vaccination for children, which are crucial for the present review to address. Nations such as the United Kingdom, the United States, Canada and various European countries have demonstrated varied vaccine uptake patterns and levels of hesitancy.^{17–19} These variations are often rooted in differences in healthcare systems, public health policies, socio-economic conditions and cultural attitudes towards vaccination.^{20,21} By focusing specifically on Western countries, the barriers and

facilitators affecting parental decisions in these countries can be identified providing valuable insights essential for developing targeted vaccination strategies and interventions that are tailored to the socio-cultural and policy environments characteristic of Western nations.

Theoretical frameworks such as the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB) have been vital in understanding general vaccination behaviour.^{22–24} According to the HBM, parents who perceive their children as highly susceptible to COVID-19, believe that the disease would be severe, and understand that the benefits of vaccination outweigh the barriers, are more likely to vaccinate their children. The TPB further suggests that favourable attitudes towards vaccination, strong subjective norms and high perceived behavioural control predict vaccination intentions and behaviours. These models have shown predictive power in studies on influenza,^{25,26} COVID-19^{27,28} and rotavirus.²⁹

However, the application of these models to the specific context of COVID-19 vaccination for children aged 5–11 remains in its infancy. Additionally, factors such as gender, ethnicity, educational level, income and parent age, as well as communication with healthcare practitioners, trust in institutions and social media influences, play significant roles in vaccine decision-making.^{30–40}

Considering the aforementioned information presented, there is a clear need to investigate the specific barriers and facilitators influencing parental decisions to vaccinate children aged 5–11 against COVID-19 in Western countries. Addressing this gap will provide valuable insights for designing targeted interventions to improve vaccination rates and align with public health strategies, such as those outlined by the NHS.⁶ Therefore, the current systematic review aims to address the research question: ‘What are the barriers and facilitators affecting parents’ decisions to vaccinate children aged 5–11 years against COVID-19 in Western countries?’.

Systematic review methods

To be included in the current review, studies had to meet the following inclusion criteria:

- i. Inclusion of parents and caregivers (not currently pregnant or with a chronic condition) with children aged 5–11 who do not have a chronic condition. The exclusion of pregnant or ill parents and caregivers, as well as children who are ill, is crucial for maintaining the focus and clarity of the present review. These subgroups have distinct health considerations and vaccination-related concerns that differ from those of the general population of healthy children and their parents.⁴¹ Including these groups could introduce variability and complicate the analysis of factors influencing vaccine decisions among healthy individuals. By focusing exclusively on healthy parents and children, this review aims to provide clearer, more actionable insights that can effectively inform public health strategies and interventions aimed at improving vaccination rates in the broader population.
- ii. Exploration of barriers and facilitators of vaccine hesitancy specifically related to COVID-19 vaccination.
- iii. Written in English and conducted in Western countries.
- iv. Full-text availability, excluding commentaries and editorials.

Search strategy

The search terms used in this systematic review were identified through examining the titles and abstracts of published papers, and the keywords of previous systematic reviews.^{13,15} Articles were identified through database searches conducted on PsycINFO, MEDLINE and Google Scholar. We employed title searches using the following terms: ‘Vaccine hesitancy’, ‘vaccine refusal’, ‘vaccine avoidance’, ‘vaccine reluctance’, combined with ‘COVID-19’, ‘coronavirus’, ‘2019-nCoV’, ‘SARS-CoV-2’, or ‘CoV-19’ and ‘parents’, ‘caregivers’, ‘mother’, ‘father’, or ‘parent’. The search period spanned from June 2023 to June 2024, focusing on literature published between 2020 and 2024. Additionally, we reviewed reference lists of relevant articles to ensure comprehensive coverage. Our review process adhered to established guidelines.⁴² To ensure quality and reliability, we cross-checked journal titles against the Directory of Open Access Journals (DOAJ) and the Committee on Publication Ethics (COPE).

Search results

The initial search yielded 165 records. After removing 20 duplicates, 145 records were screened and 101 were excluded based on the aforementioned inclusion/exclusion criteria. Of the 44 full-text articles assessed for eligibility, exclusions were made due to:

1. Child age range not being 5–11 years ($n = 17$).
2. Lack of focus on barriers/facilitators ($n = 11$).
3. Editorials/commentaries ($n = 5$).
4. Study location not in a Western country ($n = 3$).
5. Study sample not containing children ($n = 2$).
6. Investigating vaccine hesitancy in parents of children with ill-health ($n = 2$).
7. Ahead of print ($n = 1$).
8. Article language not English ($n = 1$).

The search resulted in two full-text papers being included. Two additional articles were identified through reference list scanning, totalling four articles included in the present systematic review (Figure 1, PRISMA flow diagram; Table 1, study characteristics). Two articles were listed in DOAJ, and all four contained authors who were COPE members.

Data extraction

Data extraction was conducted using a modified Cochrane Collaboration template.⁴⁷ The process involved the following steps: (i) The lead author (SD) extracted the data independently to ensure accuracy and consistency; (ii) extracted data were then subsequently reviewed and validated by the corresponding author (DG). The data extracted included the following:

1. Details regarding the aims, design and methods of each study.
2. Participant details including demographic information, inclusion and exclusion criteria and information on participant withdrawals.
3. Sample characteristics including descriptions of subgroups, overall sample characteristics and sample sizes.
4. Outcomes related to barriers and facilitators identified in the studies.

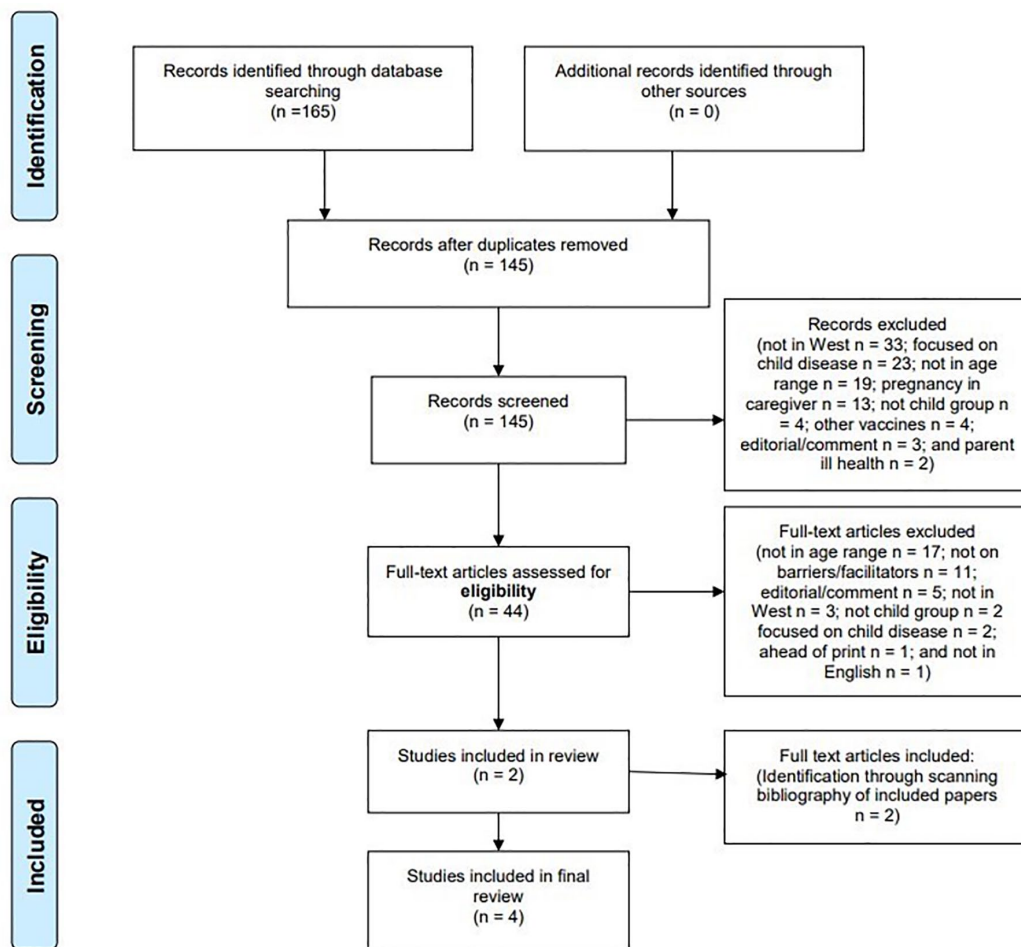


Figure 1. PRISMA flow diagram for selection of studies.

5. Statistical data and the appropriateness of the analytical strategies employed.
6. Key findings and conclusions drawn by the study authors.

This rigorous extraction and review process aimed to ensure comprehensive and accurate data collection for the systematic review.

Results

Participants

The present systematic review included four studies involving a total of 5,812 participants who were parents of children aged 5–11. The studies originated from the United States and Europe. Specifically, studies *B* and *C* were based in the United States, study *A* was conducted in Italy

and study *D* took place in Greece. Study *B* recruited a diverse ethnic sample, while study *C* included a sample weighted to represent the Hispanic, Latino and Spanish-speaking population in the US. By contrast, 98.5% of participants in study *A* were Italian, and study *D* did not report ethnicity or race.

Gender distribution varied, with a predominance of women in the samples. Study *B* exclusively recruited women, while study *A* included only 16% male respondents. Studies *C* and *D* had more balanced gender distributions with 43.7% and 41.8% male participants, respectively.

Study design

All included studies used cross-sectional, questionnaire-based designs, albeit with differing

Table 1. Characteristics of included studies in the systematic review.

Study	Country	Sample size, <i>n</i>	Average age of parents, mean \pm SD	Average age of children, mean \pm SD	Barriers and facilitators
(A) Esposito et al. (2023) ⁴³	Italy	3433	41.3 \pm 5.3	N/A	Risk perception; fear; age; gender; employment; income; booking further COVID-19 vaccines
(B) Fisher et al. (2021) ⁴⁴	US	400	35.83 \pm 7.70	7.66 \pm 1.70	Misconceptions about COVID-19; susceptibility to COVID-19; general vaccine hesitancy; COVID-19 vaccine safety; ethnicity; severity of disease for children; community support for childhood vaccines; trusted sources
(C) Hammershaimb et al. (2022) ⁴⁵	US	1613	41.58 \pm 8.45*	N/A	Perceived COVID-19 susceptibility; attitudinal barriers to COVID-19 vaccination; severe side effects of COVID-19 vaccination; parental COVID-19 vaccine acceptance; perceived COVID-19 disease severity; perceived benefits of COVID-19 vaccination; acceptance of routine childhood vaccination; ethnicity; other children having had vaccine
(D) Miliordos et al. (2022) ⁴⁶	Greece	366	N/A	N/A	Internet/TV/social media; other (religion, politics, social interactions, personal beliefs); fear of adverse events; concerns about vaccine effectiveness; COVID-19 not considered dangerous; parental COVID-19 vaccine uptake; paediatrician's recommendation; relationship status; gender

*Average age for sample, breakdown for 5–11 not provided.
COVID-19, coronavirus-19; N/A, not available; US, Unites States.

recruitment methods. Study *D* recruited parents face-to-face at two hospitals, study *A* recruited online via the local health authority website and social media, and studies *B* and *C* recruited from online panels that offered compensation for survey completion.

Quantitative analysis

Each study employed multivariate logistic regression to analyse the survey data. This method is appropriate for predicting parental vaccination intention categories based on multiple variables.

Quality assessment

The quality of studies was assessed using the JBI Checklist,⁴⁸ which is originally comprised of nine questions. However, one question (Q7) was

deemed not applicable, resulting in a maximum possible score of eight points. The assessment was conducted independently by the two authors (SD and DG) to ensure rigor. Any discrepancies – totalling 10 across 3 studies – were resolved through consensus. The studies were categorised based on their scores as follows: Low quality (0–3 points), moderate quality (4–6 points) and high quality (7–8 points). The percentage score for each study was calculated by dividing the total score by the maximum possible score of 8. The risk of bias was then categorised according to these percentages: High risk of bias ($\leq 49\%$), moderate risk of bias (50%–69%) and low risk of bias ($>70\%$). Detailed quality assessment results are provided in Table 2.

The quality assessment results were as follows: Studies *A*, *B* and *D* received a moderate rating,

Table 2. Quality assessment results.

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q8	Q9	Total	Quality level	Risk of bias (% risk of bias category)
A	1	1	0	1	0	0	1	1	5	Moderate	63, Moderate
B	1	1	0	1	1	0	1	0	5	High	63, Moderate
C	1	1	1	1	1	1	1	1	8	High	100, Low
D	1	0	0	0	1	1	1	1	1	High	63, Moderate

Quality level range: Low (0–8), moderate (9–12) and high (13–16). Risk of bias category: High ($\leq 49\%$), moderate (50–69%) and low ($> 70\%$). Q, question.

while study *C* achieved a high rating with a perfect score of 8/8 (100%). Points were lost due to the following reasons: Studies *A*, *B* and *D* were unclear about their sample size calculations, with study *D* additionally having unclear sampling methods and insufficient descriptions of the study population. Studies *A* and *B* did not provide a clear explanation of how they identified the barriers and facilitators addressed by their questionnaires. Furthermore, study *B* had an inadequate response rate.

Outcomes

Parental intention to vaccinate their children varies. Study *B*, taking place in October 2021, had a figure of 40.8%. Study *C*, which ran from October to November 2021, found that 54.0% of parents were ‘very’ or ‘somewhat likely’ to vaccinate their children. Studies *A* and *D* took place from December 2021 to January 2022, with parental intention to vaccinate their children at 42.5 and 48.1%, respectively. The timings of all four studies were around the approval date of vaccinations for children aged 5–11 (October 2021 for the United States; November 2021 for Europe).

Barriers

Common barriers to vaccination identified across the studies included concerns about the safety and risk of side effects, as well as doubts about vaccine efficacy. Higher levels of concern about the risk of side effects were reported in studies *A*, *C* and *D*. Additionally, concerns about vaccine safety and efficacy were also highlighted in studies *B*, *C* and *D*. Study *C* also found that the severity of side effects could be a barrier even amongst parents who were most likely to vaccinate their

children. Results from studies *A* and *B* indicate that believing COVID-19 symptoms in children are less severe and having a general lack of trust in vaccinations were predictive of a lack of intention to vaccinate children.

Other barriers included trust in institutions, with participants less likely to trust health institutions (study *A*), and more likely to rely on the internet, television, social media and other sources, religious or political, for information rather than healthcare professionals (study *D*). This was reflected in participants with high vaccine hesitancy being more likely to hold misconceptions about COVID-19 (study *B*) or have less knowledge about vaccines (study *A*). Additional barriers included vaccines having less support from the community (study *A*), the belief that children are less likely to contract COVID-19 (study *B*), parents not being vaccinated themselves (study *D*) and the perception that their child’s health was poor (study *D*).

Facilitators

In all four studies, parents intending to vaccinate their children were more likely to value the advice and recommendations from healthcare professionals, including doctors (studies *A*, *B* and *D*), and institutions like the Food and Drug Administration (FDA; study *C*). This emphasises the pivotal role of healthcare practitioners in promoting vaccination uptake. Moreover, confidence in the safety and efficacy of COVID-19 vaccination in children was associated with a higher intention to vaccinate, as evidenced in studies *A* and *C*.

Studies *B* and *C* revealed that parents who had received vaccinations themselves against COVID-19 were more likely to vaccinate their children.

Additionally, study *C* indicated that parents adhering to the recommended vaccine schedule for their children, and who were acquainted with other vaccinated children, exhibited a stronger intention to vaccinate. Notably, adherence to the routine vaccine schedule emerged as a robust predictor in study *C*.

Study *C* also demonstrated that implementing a COVID-19 vaccine entry requirement in schools could prompt hesitant parents to vaccinate their children. This suggests the existence of alternative avenues for promoting vaccination beyond solely psychological interventions, though the authors caution that this strategy may not be effective for the most hesitant individuals.

Demographic factors

In study *A*, parents with lower incomes or educational attainment below degree level demonstrated higher levels of hesitancy towards vaccinating their children, with employment status being another associated factor. Conversely, study *D* found that a university education or higher was conducive to vaccination, although this did not reach statistical significance in the multivariable logistic regression analysis. Higher household income was identified as a facilitator of vaccination in study *B*, but while this variable showed significance in the bivariate associations of study *C*, it was not a significant predictor in the multivariable logistic regression.

Ethnicity served as the focal point of comparison in study *B*, revealing that non-Hispanic Asian parents exhibited a greater likelihood to vaccinate, trust vaccinations and recognise the FDA guidelines on vaccine decision-making compared with non-Hispanic White counterparts. Negative community beliefs notably impacted vaccination intention among non-Hispanic White parents, whereas negative community beliefs impacted vaccination intention. In study *C*, Hispanic ethnicity emerged as a predictor of child vaccination.

The impact of gender on vaccination intention varied across studies. Women displayed a lower likelihood of vaccinating their children in study *A*, but conversely, exhibited a higher likelihood in study *D*. The more balanced gender distribution in study *D*, compared with study *A*, could potentially explain the disparities in findings. Study *C*

reported no gender differences, while study *B* solely included a female sample.

Other influential demographic factors included the number of children (identified in study *A*) and relationship status (notable in study *D*), although these were either not queried or unsupported in other studies (studies *B* and *C*).

Theoretical basis

Among the four papers, only study *C* explicitly articulated its theoretical underpinnings, drawing from constructs of the HBM for questions pertaining to susceptibility, severity, barriers and benefits. Additionally, validated scales such as the Vaccine Hesitancy Scale (VHS)⁴⁹ were employed. Study *C* was the strongest in terms of quality, suggesting that theoretical frameworks provide a robust foundation for survey development, even though study *C* did not include constructs of the extended HBM (e.g. health motivation).

Studies *B* and *D* employed scales from diverse sources. While three referenced papers in study *B* used the HBM and TPB to formulate questions, the references in study *D* either devised their questions or used validated vaccine hesitancy scales such as Parental Attitudes about Childhood Vaccines.⁵⁰ However, the lack of explicit theoretical grounding of study *B* leaves ambiguity regarding the rationale behind question selection. Study *A*, on the other hand, avoided existing scales, opting instead to develop their questions in collaboration with a local health authority.

Discussion

The present systematic review aimed to comprehensively examine the barriers and facilitators shaping parents' decisions regarding COVID-19 vaccination for their children aged 5–11 in Western countries. The review identified several influential factors, including demographic variables, concerns about side effects, trust and recommendations from healthcare practitioners.

Our review found that the most significant barriers to vaccination were concerns about side effects and a lack of confidence in COVID-19 vaccine safety and efficacy. While study *A* highlighted hesitant parents' agreement with statements regarding insufficient testing of COVID-19

vaccines, inadequate information was provided in other studies to fully capture parental concerns. Additional research has highlighted parental apprehensions regarding vaccine reactions, health issues such as myocarditis, and potential effects on the immune system and future fertility.⁵¹ These findings align with existing research on other vaccines, emphasising parental concerns about the severity of side effects regarding long-term health implications.⁵² Notably, studies *A* and *C* identified concerns among parents intending to vaccinate, indicating that vaccine hesitancy extends beyond those who delay or refuse vaccines.⁵³

These barriers identified in studies from Western countries align with findings from previous research, including studies in low- and middle-income countries such as Thailand. For example, Kitro et al.⁵⁴ reported that parental COVID-19 vaccine hesitancy was particularly high among Thai parents of children aged <12, with significant concerns about side effects and vaccine safety. Similarly, Parinyarux et al.⁵⁵ found that 58% of Thai parents exhibited moderate-to-high levels of vaccine hesitancy, influenced by their attitudes towards COVID-19 and past vaccination experiences. Taken together, these studies reinforce the importance of addressing vaccine-related concerns to improve vaccination uptake.

The most robust facilitator for vaccination intention identified in our review was recommendations from healthcare providers/bodies. This finding is consistent with Goulding et al.,⁵¹ who found that healthcare practitioners were highly trusted by parents, which is crucial for enhancing vaccine uptake. Similarly, in Thailand, the need for targeted communication strategies and evidence-based information to address parental hesitancy and promote positive attitudes towards vaccination is also emphasised.^{54,55} This finding, inclusive of hesitant parents, stresses the vital role of healthcare providers in enhancing vaccination uptake. However, study *B* found that only non-Hispanic Asian parents valued recommendations from bodies such as the FDA, suggesting that addressing deeper mistrust of medical authorities may necessitate collaboration outside the healthcare system, possibly involving community leaders.⁵⁶

Demographic variables such as education and income levels showed varied influences on vaccine hesitancy in studies *A* and *B*, indicating that knowledge gaps and inequality might contribute to hesitancy. Bergen et al.⁵⁷ found that COVID-19 vaccine hesitancy was more prevalent among parents with lower education levels, while those with higher education were more likely to refuse child vaccination. This disparity is consistent with prior research on hesitancy towards other vaccines.⁵⁸ While study *A* did not propose strategies for increasing vaccination uptake among this group, study *B* acknowledged that providing more information and facts on vaccination may be insufficient to reduce hesitancy, as supported by research on other vaccines such as against human papillomavirus (HPV).¹¹ Therefore, healthcare providers should focus on addressing parental concerns and fears rather than solely emphasising knowledge deficits by employing techniques such as motivational interviewing to enhance vaccination uptake.^{36,59}

Ethnicity was an unclear predictive variable, with vaccination intentions, barriers and facilitators varying among ethnic groups across studies. Conflicting results were also observed for gender, with females showing varying likelihoods of vaccinating in different studies. These findings align with research on misinformation and COVID-19 vaccination intention, which found no clear effects on gender or ethnicity. Moreover, previous research on HPV vaccination revealed no demographic factors associated with intention to vaccinate,⁶⁰ highlighting the inconsistency of demographic factors in influencing parental vaccination decisions.

A critique of the studies included in this systematic review is that only one (study *C*) used a theoretical model (HBM) as the basis for scale development, although this was not the extended version. Jones et al.⁶¹ argued that testing specific constructs outside of the full model fails to prove its effectiveness or differentiate between overlapping constructs. Therefore, ensuring that full theoretical models are used can aid researchers in understanding and predicting vaccination behaviour among the population,⁶² informing behaviour change interventions. Research and intervention studies based on theoretical models are considered more rigorous and replicable.^{63,64}

Regarding outcomes, the combined average parental intention across studies included in this review to vaccinate children aged 5–11 against COVID-19 was 48.15%, lower than the global meta-analysis vaccination rate of 61.4%.¹³ This discrepancy may reflect a real shift in parental attitudes towards vaccination, possibly influenced by increased media scrutiny and the relatively lower reported severity of disease in children.

Implications

While the present review has explored the psychological and behavioural factors influencing parental decisions regarding COVID-19 vaccination of their children in Western countries, it is crucial to acknowledge a common criticism of behaviour change interventions; they often narrowly target the individual level.⁶⁵ Consequently, broader policy strategies and effective communication from governmental and healthcare bodies are vital to support parental decisions.⁶⁶ For instance, the decision by the JCVI to recommend COVID-19 vaccination for children aged 5–11, although delayed compared with other countries, initially emphasised that vaccination was not urgently required for this age group, possibly undermining the messaging around the necessity of two vaccine doses.⁶⁷ Additionally, the NHS vaccination strategy could prove instrumental in promoting uptake among parents of young children. By employing targeted outreach campaigns, engaging trusted healthcare professionals, and providing easily accessible vaccination clinics, NHS England⁶ can ensure parents feel informed and empowered to make vaccination decisions for their children. Furthermore, including behaviour change researchers in shaping policy and communication initiatives can enhance the effectiveness of uptake strategies by incorporating evidence-based approaches tailored to the specific needs and concerns of parents.⁶⁸ Although the studies included in the systematic review did not originate from the United Kingdom, their findings offer valuable insights that can be adapted to the United Kingdom context to improve vaccine uptake. For example, the identified barrier of distrust in institutions and concerns about side effects can be addressed by the NHS through transparent communication about vaccine safety and efficacy, and by having healthcare professionals personally endorse vaccination to parents, as these factors were significant facilitators in the reviewed studies.

Another strategy to encourage parental vaccination may involve the use of mandates. Study *A* found that most recommended vaccines in Italy have mandates attached to them, which encourage parents to vaccinate. The absence of such a mandate for the COVID-19 vaccine may have influenced parental perceptions of its importance. However, vaccine mandates may not be universally acceptable; Teasdale et al.⁶⁹ found that 25.1% of parents ($n=2506$) reported that they would not vaccinate their child if required for school attendance, while hesitant parents in study *C* indicated that they would vaccinate their child(ren) if schools required it. This further supports the notion that interventions extending beyond the individual level may be required to influence parents' COVID-19 vaccine decision-making.

Limitations

The stringent criteria applied in the present systematic review contributed to a smaller pool of included papers, which may impact the generalisability of the findings. That said, these criteria were carefully selected to prioritise the inclusion of studies from Western countries, thereby mitigating potential confounding factors associated with access disparities that are prevalent in low- and middle-income nations.⁷⁰ These similarities allowed for a full review of factors influencing parents' decision-making to vaccinate their children against COVID-19, minimising the variability that may arise from differences in economic resources, healthcare access and vaccine distribution capabilities found between high- and lower-income countries. Nonetheless, the importance of understanding vaccination behaviours in diverse economic contexts is a valuable area for future research, and the present review justifies comparative analyses that could include lower- and middle-income countries in subsequent reviews, to develop a more complete global perspective on this critical public health issue. Additionally, while it is notable that most of the studies met only moderate quality standards, with some lacking clarity in identifying barriers and facilitators, as well as in sample size calculation, the present review employed a robust and comprehensive methodology that ensured a thorough examination of the available evidence. Thus, enabling a detailed synthesis of the barriers and facilitators that shape parental vaccine decision-making.

Conclusion

The current review offers a thorough synthesis of the factors shaping parental decisions regarding COVID-19 vaccination for children aged 5–11 in Western countries. Notably, concerns about side effects and safety exert a substantial influence on parental vaccination intentions, highlighting the importance of addressing these apprehensions. Additionally, healthcare provider recommendations emerge as a critical facilitator in encouraging vaccination uptake. These findings emphasise the necessity for tailored behaviour change interventions aimed at alleviating parental concerns and increasing vaccine acceptance. The findings of the current review should be used to inform intervention design, particularly in addressing side effects and safety concerns, while also maintaining trust, which will then likely enhance vaccination uptake among this demographic.

Declarations

Ethics approval and consent to participate
Not applicable.

Consent for publication
Not applicable.

Author contributions

Stephanie A. Davey: Conceptualization; Data curation; Investigation; Methodology; Project administration; Validation; Visualization; Writing – original draft; Writing – review & editing.

Daniel Gaffiero: Conceptualization; Data curation; Investigation; Methodology; Project administration; Supervision; Validation; Visualization; Writing – review & editing.

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Competing interests

The authors declare that there is no conflict of interest.

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